Application No.: 09/747,602   23   Docket No.: 404332000200

REMARKS

Introduction

As mentioned in the REMARKS section of the AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION, dated June 24, 2004, applicant believes that he has developed a new paradigm for behavioral synthesis, and that he has developed numerous inventions in the process. Through this FIRST SUPPLEMENTAL AMENDMENT, applicant submits claims directed to several different aspects of the overall behavioral synthesis process. The following sections of these REMARKS, give examples of support for previously presented claims (2-27) and new claims (28-70).

Applicant has grouped the new claims as follows:

- Transport (claims 2-28)
- Selector (claims 29-54)
- Variant (claims 55-59)
- Exposer (claims 60-61)
- Exposer/Collector (claims 62-66)
- Removal of Exposer/Collector (claim 67)
- Cast (claims 68-70)

Support for Previously Presented "Transport" Claims 2-27

In the previously submitted, AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION, dated June 24, 2004, applicant previously presented claims 2-27. In this section of these REMARKS, applicant sets forth examples of support in the specification for those previously presented new claims 2-27.

Claim 2

An example of support for previously presented claim 2 is provided in the specification at page 5, lines 11-24. An example of support for "transport" used in claim 2 is provided at page 30, line 9-page 31, line 25. An additional example of support for claim 2 is provided at page 65, line 21-page 66, line 18.

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Claim 3

An example of support for <u>previously presented</u> claim 3 limitation, "propagating at least one of information concerning, dataset type, information rate or action latency, from an input of the transport object to an output of the transport object;, is provided at page 11, lines 15-17. Additional examples of support for this claim 3 limitation are provided at page 22, lines 25-31, and at page 52, lines 21-32, and at page 53, lines 27-29, and at page 49, line 25-page 50, line 20, and page 61, lines 16-27, and at page 65, line 21-page 66, line 18.

Claim 4

<u>Claim 4</u> - An example of support for <u>previously presented</u> claim 4 limitation, "substituting an equivalent function descriptor object in place of the function descriptor object based upon the propagated parameter information.", is provided at page 73, line 11-page 81, line 9. These pages describe iterative propagate data sets and flatten processes in which data sets (i.e. "information") is propagated over transports, and in response to that data set propagation, equivalent behavior objects are substituted for behavior objects. In the example on pages 73-81, the "behavior" is the invert behavior. The "propagate data sets process" is described in general at page 53, lines 23-29.

Claim 6

An example of support for <u>previously presented</u> claim 6 limitation, "wherein for any given set or pattern of input information atoms, the function descriptor object will produce the same set or pattern of output information atoms as the other function descriptor object.", is provided at page 73, lines 11-23, which explains in general, "pattern of behavior" and at page 76, lines 5-15 and page 78, lines 6-17, which explain in general, "data set propagation pattern" and at page 78, lines 14-17 and page 80, lines 16-23, which explain in general "pattern of processing".

Claim 15

Claim 15 includes the following limitations:

"wherein at least one of the following is true,

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a data set of the function descriptor object is equal to a data set of the other function descriptor object, or

an information rate of the function descriptor object is less than or equal to an information rate of the other function descriptor object, or

an action latency of the function descriptor object is greater than or equal to action latency of the other function descriptor object."

An example of support for these previously presented claim 15 limitations is provided in general at page 8, line 5-page 12, line 31 and in particular through the "Postulate" at page 10, lines 16-24:

<u>Claim 25</u>

Claim 25 includes the following limitations:

"creating a graphical diagram in a computer system display,

which represents an algorithm

which includes a variant equivalent function descriptor graphical object

which includes one or more variant transport graphical objects, each including an input node and an output node, and

wherein the diagram represents the variant equivalent function descriptor graphical object coupled to one or more respective output nodes of one of the one or more variant transport graphical objects;

automatically creating a design in a computer readable medium,

which corresponds to the diagram,"

An example of support for the above previously presented claim 25 limitations is provided at page 1, line 5-page 3, line 4:

Claim 25 also includes the following claim limitations:

"which includes a variant equivalent function descriptor design object that corresponds to the variant equivalent function descriptor graphical object

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which includes one or more variant transport design objects that correspond to the one or more variant transport graphical objects,

wherein each variant transport design object includes an input node and an output node, and

wherein the variant equivalent function descriptor design object is coupled to one or more respective output nodes of one of the one or more variant transport design objects;

associating respective information with respective input nodes of the one or more variant transport design objects;

propagating the respective information from the respective input nodes of the one or more variant transport design objects to respective output nodes of the one or more variant transport design objects coupled to the variant equivalent function descriptor design object; and

substituting a less variant equivalent function descriptor design object into the design in place of the variant equivalent function design object based upon the propagated explicit information."

An example of support for these additional previously presented claim 25 limitations is provided in the drawings of Figures D1-D10 and the corresponding text of the specification, in Figures E1-E9 and the corresponding text of the specification and in Figures F1-F8 and the corresponding text of the specification and in Figures L10-L13 and the corresponding text of the specification and in Figures P3-P7 and the corresponding text of the specification.

Support for New "Transport" Claim 28

A general example of support for new claim 28 is provided in the specification at page 30, line 6- page 31, line 25, and in particular at page 31, lines 20-25 and in Figures F1-F8 and the corresponding text of the specification, especially at page 81, lines 1-9.

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Support for New "Selector" Claims 29-54

Claim 29

An example of support for a "select object" of new claim 29 is provided at page 17, line 11-page 23, line 20 and in the illustrative drawings of Figures A1-A3, Figures B1-B3 and Figures C1-C3.

An example of support for the method of new claim 29 is provided in the illustrative drawings of Figures D1-D10 and corresponding text in the specification at page 47, line 4-page 49, line 21 and at page 52, lines 5-10 and at page 58, line 22-page 72, line 8.

For example, the "at least one second object" referred to in claim 29 may correspond to the serial adder 232 or the parallel adder 234 of Figure D3. The "at least one third object" referred to in claim 29 may correspond to the control portion 280. The "at least one first object" is not shown in the drawings of Figure D3, but is described at page 59, line 19-page 60, line 19. In particular, for example, page 60, lines 3-6 describe "other behavior objects in the design".

Referring to Figure D8, the "control information" has a value that causes selection of the parallel adder 234. Thus, for example, if it is assumed that the "second object" corresponds to the serial adder 232, then Figure D8 shows the removal of the "second object" (i.e. the serial adder). If on the other hand, for example, if it is assumed that the "second object" corresponds to the parallel adder 234, then Figure D8 shows an association of the "second object" (i.e. the parallel adder) with another behavior object (not shown) via transports 304, 306 and 308.

Claim 31

An example of support for the new claim 31 limitation, "using the parameter information to transform the at least one third behavior object into control information;" is provided in the series of illustrative drawings of Figures D3-D5 and the corresponding text in the specification, which illustrate and describe the conversion of the control portion 280 into a value propagated via transport 276 to control inputs of the selectors 236, 238, 240, 242, 244 and 246.

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Claim 33

For example, the "at least one first object" referred to in new claim 33 is not shown in the drawings of Figure D3, but is described at page 59, line 19-page 60, line 19. In particular, for example, page 60, lines 3-6 describe "other behavior objects in the design". For example, the "at least one second object" in claim 33 may correspond to the serial adder 232 of Figure D3, and the "at least one third object" in claim 33 may correspond to the parallel adder 234 of Figure D3. For example, the "at least one fourth object" of claim 33 may correspond to the control portion 280 of Figure D3.

Support for New Variant Claims 55-59

Claim 55

An explanation of the use of the term "variant" is provided in the specification at page 15, lines 10-18.

An explanation of changing "locus of synthesis" is provided in the specification at page 6, line 24 – page 7, line 5.

The castup/castdown process described with reference to Figures E1-E9 provide an example of support for new claim 55. The castup object 402 of Figures E1 and E2 provides an example of "variant first behavior type object" in accordance with claim 55. The castup terminal leaf 420 of Figure E3 provides an example of an "explicit first equivalent function" behavior object" in accordance with claim 55. The castdown object 404 of Figures E1 and E4 provides an example of a "variant second behavior object" in accordance with claim 55.

Support for New Exposer Claims 60-61

Claim 60

An explanation of "exposer" is provided in the specification at page 23, line 21-page 27, line 3 in Figures G1-G3, which provide support for new claim 60.

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Support for New Exposer/Collector Claims 62-66

Claim 62

An explanation of "exposer" and "collector" is provided in the specification at page 23, line 21-page 27, line 3 in Figures G1-G3, which provide support for new claim 62.

Examples of support for new claim 62 is provided in illustrative Figures F1-F8 and Figures M1-M3 and Figures O1-O3 and the corresponding text of the specification. Additional support is provided by Figures LL12 and N2 and the explanatory text of the specification at page 55, line 19-page 56, line 24.

A further example of support for new claim 62 is provided at page 27, line 5- page 30, line, and particularly, at page 29, line 31-page 30, line 5.

Support for New Removal of Exposer/Collector Claim 67

Claim 67

An example of support for new claim 67 is provided in the specification at page 55, line 25-page 56, line 24 and Figures O1-O3.

Support for New Cast Claims 68-70

Support for claims 68-70 is provided in Figures E1-E9 and corresponding text in the specification.

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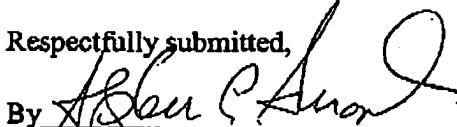
CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no.404332000200. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: December 23, 2004

Respectfully submitted,

By _____

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